Proceedings of the Joint CIB W099 and TG59 Conference
Coping with the Complexity of Safety, Health, and Wellbeing in Construction
Salvador, Brazil, 1-3 August 2018

CULTURAL CUES AND BEHAVIOURAL PATTERNS IN STRESS DYNAMICS: A CASE OF THE CONSTRUCTION INDUSTRY

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Critical factors underpinning stress development in the Construction Industry were investigated in an ethnographic study. Data were collected from three construction organisations in the UK and analysed by content analysis. The results show the pivotal importance of interpersonal relationships to coping with the uncertainty of working conditions, coordination of activities involving teamwork and managing responsibilities and power interactions. The study underlines the importance of dedicated services for stress management and specific training-related abilities devoted to reinforcing positive dynamics between persons and organizations. In particular, these related to managing the impacts of stress on physical status, interpersonal relationships, work performance, and emotional well-being. Communication systems, tools and software and their application were also claimed to have been carefully implemented as effective stress deterrents in the management of daily routine activities.

Keywords: behavioural patterns, construction industry, culture, stress.

INTRODUCTION

Construction workers are highly exposed to psychological fragilities, including emotional and stress-related problems and have to cope with incessant and physically demanding responsibilities and problems within uncomfortable physical working environments, having limited authority, and sometimes absence of support from their organizations and members of the public (Chan et al 2014). Construction workers experience a lot of stress. There has been a vibrant interest of research, surveys, reports and case studies of stress among construction workers. The preponderance of these cited studies into the subject matter has been framed in the field of Construction and the Built Environment. Most studies are predominantly quantitative and inclined to viewing workers' stress as an individual phenomenon, with individual worker characteristics providing the most frequent variables of study.

CONTEXT

The study of stress in Construction

Stress in the Construction Industry has been tightly linked to repetitive but arduous assignments, scarce interpersonal support, difficult safety climates, uncomfortable physical environments, work overload, lack of autonomy and conflicting roles. Stress can impact negatively on an individual's psychological health and performance, and can manifest as a strain, sense of frustration, low motivation, injury and lesser productivity (Lingard and Francis 2004, Bowen et al 2014). While some of the stressors have been studied and described in more detail like environmental conditions (for example, extreme temperatures, poor air quality, or excessive noise) which are more tangible and measurable with instruments, other less tangible factors like cultural and interpersonal factors and the

behavioural patterns and representations of people within organisations are less described in literature (Haynes and Love 2004; Mitropoulos & Memarian 2012; Enshassi et al 2018).

Stress, Data and Epidemiology

The UK Health and Safety Executive (HSE) has defined work related stress as *the adverse reaction people have to excessive pressure or other types of demand placed on them* (HSE 2018). In 2006, a pioneering large study conducted by the Chartered Institute of Building (CIOB) in the UK, showed how stress in the Construction Industry was extremely linked to inter alia, interpersonal and cultural/organisational factors i.e.: lack of feedback (56.8%), poor communication (55.7%), inadequate staffing (55%), too much work (64.1%), ambitious deadlines (59.7%), pressure (59.9%) and conflicting demands (52.2%). On the contrary, site safety, inadequate equipment and poor physical environment were among the lowest scoring factors with over 80% of the survey respondents stating that these were not a cause of occupational stress (Campbell 2006).

Occupational stress outcomes in Construction have been associated with a high presence of anxiety and depression, whereby workers spend less time maintaining their health status, take on less personal responsibility, and invest less energy in their work activities (Chan et al 2014). However, according to the literature, this tremendous emotional impact on construction workers has never been assessed by certified and qualified professionals (Chinyio et al 2018). Generally, studies conducted on stress in Construction have not involved other specialists such as Psychologists. Meanwhile, Psychology is a very useful discipline that can enhance a better understanding of interpersonal and organisational factors that impact on peoples' lives as well as stress outcomes, particularly emotional distress (anxiety and depression). Thus a study was commenced, aimed at investigating how stress develops and manifests in the construction setting. The purpose of this ongoing study is to better understand the culture and interpersonal behaviours associated with stress in different construction contexts or organisations. This paper is based on the ongoing study.

METHODOLOGY

Literature on stress in the Construction field presents some criticisms at the methodological and theoretical level, including an absence of a precise competence to assess and treat stress at the work setting, the prevalence of descriptive study designs (surveys) and the recurrent use of ad-hoc instruments (questionnaires, structured scales and self-report measures) without well specified psychometric properties (e.g. Chan et al 2014). Literature also urges a focusing of the research lens on relationships, systems, roles, culture and behaviours of people within Construction organisations, rather than the mere collection of individual self-report perceptions based on the personal views of the respondents (Chinyio et al 2018). To build on the existing understanding of this area, it is our trust that a qualitative perspective, and particularly ethnography, offers an intellectual paradigm to better understand organizational dynamics and their impact on the development of stress in the Construction industry.

Ethnographic Inquiry

The current study was a case study conducted using the ethnographic methodology: a process of assembling different types of information about a specific group or culture, and the product that draws together actions, facts, and behaviours into a representative snapshot (Hammersley, and Atkinson 1995). During an ethnographic work, a broad fieldwork describes the

production of a cultural and ecological interpretation of environments. To do so, an intensive work is undertaken to grasp the participants' perspective. An important principle in ethnography is that knowledge is grounded in the experiences and culture of the social group members. Ethnography permits the researcher to observe, experience, and engage in dialogue with immediacy as events unfold, allowing insightful knowledge into the behavioural underpinnings of interpersonal dynamics in Construction organizations.

Participants

Three organisations were involved in the study and were sourced through purposive sampling via their Human Resources departments. A meeting with the chief executive officer (CEO) ensued and, following agreement for access to the organization, the first author was introduced by the CEO to all full-time employees in person. Participants were provided with a verbal and written briefing about the study rationale, methods, and potential uses of data including all the necessary information about confidentiality and privacy. Our University's ethical approval was obtained prior to initiating the practical study procedures.

Observations

The great part of the data collection period was structured in observations which ranged between 2 and 4 hours per day in a period lasting 6 months. A total of 10 sites were explored and; on each site, the observations involved activities by 5 to 20 people.

Interviews

Five to ten interviews (by means of unstructured and semi-structured questions as well as colloquial discussions) were conducted on each site, as broken down on Table 1. While the unstructured and the colloquial discussions varied widely throughout all the ethnography observations, the semi-structured interviews were conducted more precisely with 16 people: four of these working in offices at the managerial level and 12 working on construction sites. Three of the interviewees were women: one was office-based while two were site-based.

Table 1: Data collection through interviews and discussions

	Nature of construction tasks	Company size	Semi-structured Interviews	Unstructured interviews	Colloquial discussion
Company No.1	Housing Maintenance	Medium (< 250-500)	5	3	7
Company No.2	Social Housing	Large (> 500)	10	8	10
Company No.3	Health & safety services	Small (<100)	1	0	1

Data analysis

An ethnographic content analysis was performed. This analysis refers to an integrated method, for locating, identifying, retrieving, and analysing documents for their relevance, significance, and meaning. The emphasis is on discovery and description of contexts, underlying cultural descriptions and discern meaning, and theoretical relationships.

FINDINGS AND DISCUSSION

We did not explore the management processes promoted in the 3 organisations in detail. However, from the interviews made, we found two main types of management styles across the three organisations:

1-*coaching style*: professional managers had a great responsibility to train and develop workers to an optimum performance level. The techniques used in this style include regular informal conversations with employees, immediate praise and feedback, frequent reviews and consistent mentoring.

2-*participative style*: this style was particularly used when someone in a leadership position wanted to get employees involved in decision-making (e.g. for a demolition plan, working with a shaky wall).

Stress factors

Despite the different experiences between office based and site based workers, the meaning and implications of stress which they proffered were very close to each other. The main categories of stress factors identified were: *uncertainty, team working, handling responsibilities, power and leadership*.

Time and workload

One of the most visible sources of stress for both office and site based construction workers related to uncertain working conditions in terms of (1) limited time, (2) poor communication and (3) limited resources:

(1) *Limited time*. For different managers stress was attributed to the amount of activities to do in a very short space of time where their working hours were often not sufficient to satisfactorily complete their job-related activities. Other problems were attributed to unexpected changes of the work plan. Generally, each activity is precisely organized and defined in advance. However, once a site is operational, unexpected changes occur frequently due to e.g. encountering uneven grounds, watercourses and asbestos. These problems are managed by both office managers and site workers. Some construction workers reported that covering the required activities within the deadlines was often a source of stress. The perception of excessive workload forced some construction workers to work extra-hours or during weekends, which interfered with their personal relationships and responsibilities. Almost all the construction workers encountered talked about the high number of hours on site. This prolonged presence was central to the stress that many of the construction workers experienced. According to one interviewee: "*we work all day all together despite the weather, and this is exhausting*". This constancy of presence was sometimes linked to respecting deadlines, and the responsibility of conveying all this information on time to their chiefs or managers in charge.

(2) Communication. Construction workers are positioned in a particular way within the workplace's institutional hierarchy. Conducting all the activities and managing communication within this hierarchy may be a source of stress. Many construction workers on site identified lack of communication from bosses, clients, and the leadership team as a significant source of stress. This included lack of advice and feedback around job performance, scarce communication around negotiations and concessions and lack of diligence to explain certain critical working conditions. This has significant consequences like unsafe actions and arbitrary behaviours. Construction workers, in general, indicated that poor communication created a chaotic work environment including constant interruptions and

filthy work conditions. One interviewee explained that: "*When you start a job, I receive instructions from the clients and no negotiations are possible: in these cases you work only to finish your job ASAP and this is very dangerous*".

(3)Limited resources. Some construction workers on site highlighted the lack of access to basic supplies and facilities (e.g., suitable kitchen, toilet paper, soaps) as a significant source of stress. They generally brought food from home and warm it up on site. While the quality is not very much evaluated, the impact of such food on the body is markedly considerable: the food must give energy and heat/coolness (depending on season) very soon.

The culture and interpersonal behaviours in the Construction industry is that you have the ability to partake in manual labour and withstand long working hours and you do not care about working facilities. However the construction site environment creates personal stress because job activities and responsibilities are perceived as unreasonable and unequal.

Team working

Construction workers operate with their colleagues both in peculiarly close proximity and spatially. Working closely together for 7 to 8 hours a day means that relationships with colleagues are markedly significant. According to one interviewee: "*in this type of work, we all need to learn to get along*".

For people working in offices, their activity was strictly connected with the process of work of their colleagues. Even when they did not share a physical space, they shared temporal proximity because they worked on similar deadlines, with almost the same clients and the outcomes of their activities were intertwined.

The spatiotemporal proximity provides a consistent source of stress. Temporally, construction workers work with each other for extended periods of time and; spatially, they share a very high level of proximity. They thus need to have trustworthy relationships with each other in order to perform risky activities more effectively as most of the activities have to be performed in teams where coordination, trust and sharing information are indispensable. However this relevant aspect is often neglected. The culture and interpersonal behaviours in construction activities take for granted the aspect of spatiotemporal proximity, but it is a core aspect of undertaking activities and procedures in especially dangerous or confined areas.

Handling Responsibilities

Handling responsibilities was often perceived as a burden which e.g. included monitoring or supervising the work of other colleagues (depending on the role covered), and in some cases, actually taking the high responsibility of doing some activities autonomously. Taking high responsibility happens in two main ways, when: (a) colleagues are new learners to the field (e.g. trainees), and the safety of the activities to be done depends on the construction workers with more experience; and (b) particular situations, like emergencies or last minute clients' requests to finish work as soon as possible. During emergencies, negotiating a power-based hierarchy has to be taken on in order to get the work finished. This creates stress and anxiety. One of the office based workers offered a detailed account of his sense of burden for his responsibility when you have to respect all the clients' expectations: "*You need to be precise, quick and kind at the same time but you actually are worried, in apprehension and nervous*". Similarly, a worker on site described his frustration as, when "*you are working in a house, you have the responsibility to do a good job and the responsibility to finish ASAP for respecting clients' expectations*".

The interpersonal behaviours in the Construction industry underpin the idea that the 'customer is king'. The quality of own work is a matter of honour as well as the respect of deadlines.

This representation determines not only a very high sense of responsibility in workers but also much stress including emotional problems (anxiety, nervousness), little clarity and a sense of dissatisfaction.

Power and Leadership

Construction workers expend considerable mental and physical energy daily on their particular activities. The process of interacting and negotiating with colleagues, supervisors, site managers and more experienced colleagues contributes much to their stress. A common cliché among construction workers is to express their own opinions about how to do a certain activity, or the way to solve a problem. A large amount of these opinions and views are often considered counter-productive for decision processes and this adds to the high stress. This behaviour is often a source of discussions about power and management.

Office managers are apparently in control, but construction workers also exert a considerable amount of control over their activities. However, when social relations are taken into account, the two kinds of control are very different. Office and site managers have an explicitly specified and higher position in the organisational hierarchy, which entails a more recognizable role in the decision-making tree as well as much higher financial remuneration for their work. Conversely site workers (and sub-contractors) occupy a much more ambiguous location in the hierarchy and their attitudes and behaviours of expressing continuous opinions are seen as a source of higher stress. Certainly some decision-making procedures and rules indicate that this tier is below the office managers/site managers. Yet, this is not without ambiguity, because construction workers' lower power status is implicitly elevated when it comes to "getting the job done," especially in the case of emergencies or meeting last minute clients' requests. In addition, this ambiguity is exacerbated by the social positions of these workers: they are generally mostly self-employed and this means they are autonomous and independent of formal authority.

The culture and the organisational behaviour in the Construction industry are strongly impacted by the type of job contract and relationships therein. In a typical relationship, an employee contributes labour and expertise to an employer's endeavour and is usually hired to perform specific duties on a regular basis in exchange for compensation. However, this employee–employer relationship is unusual in the Construction industry because most of the workers are self-employed where respect for hierarchies may not count and communication with peer and supervisors may be confusing.

DISCUSSION

The goal of the current study is to gain a better understanding of the dynamics (particularly behaviours and cultural factors) related with stress development among construction workers. Essentially, the study is being conducted with a psychological orientation, a complete innovative perspective that is very careful to detect hidden actions, thoughts and representations to supplement the tangible and concrete determinants which have previously been reported in the Construction literature. First, a common argument of disparity emerged i.e. the demands of construction workers are perceived as overwhelming (e.g., work overload, pressures due to high responsibility) while the resources to meet these are perceived as particularly inadequate (e.g., lack of information, limited negotiations with the client, and few external resources). Lack of control and great autonomy is not so much a source of stress except in the context of job demands and decision making processes. Instead, a lack of equilibrium between perceived demands and resources was seen as an important contributor to construction workers' stress.

Some of the causes of stress described by our observations e.g. work overload, role overload and lack of resources are consistent with previous reports in literature (e.g. Bowen et al 2013). Perhaps, the difference between our findings and those of previous studies is our in-depth investigation about the cultural meanings and organisational behaviours causing stress. Construction work involves team-working where relationships assume a relevant position: trust, handling responsibilities and managing the level of power are fundamental dimensions of these relationships.

Stress is strongly attributed to the type of relationship. In this context, two important results emerged. First, the cultural approach of construction workers is peculiar and it reflects the idea of 'work as much as possible'. Construction workers tend to work incessantly and meet own professional goals promptly even at high cost to personal life, family and mental or physical health. This approach is also reinforced by self-employed contract jobs that are generally common in the construction industry. Second, the level of stress experienced by construction workers is strongly connected with their level of engagement and commitment: the more they are involved and committed in their job, the greater is their probability to be stressed. We found a positive association between these two variables in our study. The connection between the level of commitment and elevated stress is well documented in some domains, e.g. health (Gustafsson et al., 2010) while it is unreported in the construction discipline. Hence our practical findings are novel in terms of construction practice.

CONCLUSION

Our research established that stress is still prevalent in the construction industry. The sources of stress are known and identifiable. The stress experienced in the construction industry is remarkably intense as to cause apprehension, not only for the health of workers, but also for their continuing contribution to this sector. The harmful consequences of stress have an inexorable impact on the person, and on his/her context, that is on family, community and society. A general recommendation from the analysis of this study is to search for a greater multidisciplinary collaboration with other Professional Bodies (Particularly with psychology) as this is currently neglected. New multidisciplinary interventions in the challenges of construction should analyse not only the detrimental effects of stress but also promote healthy conducts to cope positively with stress. These interventions should include the offering of individual and organisational resources: mental health programs, ergonomics solutions and trainings on communication abilities and organisational programs.

In addition, there are significant public health and policy implications associated with addressing the sources of construction workers' stress at both the individual and organizational level. At the individual level, it is fundamental to find a new strategy to allow workers to deal with stress issues quickly, particularly in preventing dangerous behaviours (e.g. use of drugs, or gambling) while guaranteeing competence, and privacy. At the organizational level, it is important to provide a continuum of services at the job place, including protective measures to prevent the predictable sources of stress (e.g., providing targeted support with direct access to psychological and counselling services). The organisational interventions should also include specific training activities for construction workers covering several aspects of relationships (e.g., assessable and transparent communication among staff members, assertiveness, equity in the system of hierarchies) to promote resilience, wellness, and enhanced job functioning.

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